

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Patent Application of Juris Sulcs

Serial No.: 09/597,547

Art Unit: 2879

Filed: June 19, 2000

Examiner: Santiago, Mariceli

Title: HORIZONTAL BURNING HID LAMPS AND ARC TUBES

EXHIBIT A

Please replace the third paragraph on Page 9 with the following new paragraphs:

- - Figure 23 is a pictorial view of the process of using a lathe and torch to make the arc tube of the present invention from a tube of vitreous material. - -

- - Figure 24 is a pictorial view of the process of using a lathe and torch to make the arc tube of the present invention from a tube of vitreous material. - -

- - Figure 25 is a pictorial view of the process of using a lathe and torch to make the arc tube of the present invention from a tube of vitreous material. - -

- - Figure 26 is a pictorial view of the process of using a lathe and torch to make the arc tube of the present invention from a tube of vitreous material. - -

Please replace the fourth paragraph on Page 9 with the following paragraph:

- - The cross section of the chamber 34 is generally the same between the electrodes, i.e., the bottom is substantially planar between the electrodes, and the center of the circles which define the upper portion of the arc tube are coaxial with the electrodes. However, as shown schematically in Figure 11, the radius of the circles gradually decrease from the radius R_c at the center section of Figure 7A through radii R_1 , R_2 , etc. to both ends of the chamber 34. This results in a continuing decrease in the cross-sectional area from the center of the chamber to the ends thereof as well as a slight decrease in the horizontal width of the flat bottom from the center of the chamber toward the ends thereof. In one embodiment, the width of the arc tube at the height of the free ends of the electrodes is approximately two thirds of the width of the arc tube at the same height at the center of the arc tube. At the longitudinal center of the arc tube, the ratio of the width of the arc tube to the height of the arc tube may be approximately one. Additionally, the ratio of the maximum vertical height of the chamber to the maximum horizontal width of said chamber may be approximately one. - -

Please replace the second paragraph on Page 11 with the following paragraph:

- - A slight v-shape or large radius curve may also be provided along the bottom portion of the chamber from end to end. The object in all embodiments is to provide an essentially flat bottom to the chamber to thereby increase the surface area of the halide pool and thus the vapor pressure of the halides in the arc. This bottom may be curved or v-shaped both longitudinally and/or transversely of the arc tube. Formed body arc tubes provide great manufacturing flexibility and may[,] e.g., be manufactured in the manner described in the Sulcs et al copending patent application Serial No. 09/470,156 filed December 22, 1999 and entitled "Method of Making Optical Coupling Device" [(Case 2159)] assigned to the assignee of the present invention, the disclosure of which is hereby incorporated herein by reference. - -

Please replace the second paragraph on Page 13 with the following paragraph:

- - One of the advantages of the present method of arc tube formation is that the arc tube may be made in symmetrical or asymmetrical shapes which are difficult to produce by pinch sealing of a cylindrical tube. In one embodiment, the ratio of the diameter of the tube to the maximum horizontal width of the tube may be approximately between about seven to ten and about seven to thirty. In preferred embodiments, the bottom of the arc tube is between about 20 and about 80 percent of the length and width of the chamber, preferably between about 50 and about 60 percent of the length. - -